Lesson 1: The Cell Theory Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Unit 3: Prokaryotes & Eukaryotes Mrs. Ward

|  |
| --- |
| Objective: SWBAT explain the three components of the cell theory. |

|  |  |  |
| --- | --- | --- |
| Do Now  *Answer “True” or “False” for the following statements*   |  |  | | --- | --- | | **1. \_\_\_\_\_**There are approximately 10 billion cells in the human body.  **2. \_\_\_\_\_**You have billions of bacteria inside your body right now.  **3. \_\_\_\_\_**Cells are about the size of atoms.  **4.** **\_\_\_\_\_**It is unhealthy to eat food containing microorganisms (microscopic living things).  **5.** **\_\_\_\_\_**Microorganisms cannot live in extreme heat or cold. | **6.** **\_\_\_\_\_**Bacteria make up about 1 percent of your body weight.  **7.** **\_\_\_\_\_**Microorganisms produce some of the oxygen we breathe.  **8. \_\_\_\_\_**There are over 350 species of bacteria living inside your mouth.  **9. \_\_\_\_\_**Antibiotics kill viruses.  **10. \_\_\_\_\_**The bubonic plague bacteria was responsible for killing one-third of the population in Europe. | |

Guided Reading (*adapted from “Biology: The Dynamics of Life”*)

|  |  |
| --- | --- |
| Before microscopes were invented, people believed that diseases were caused by curses and supernatural spirits. They had no idea that organisms like bacteria even existed, and they had very little understanding of what the human body was made of. As scientists began uising microscopes, they quickly realized that they were entering a new world – one of *microorganisms*. Microscopes enabled scientists to view and study cells, the basic units of living organisms  A Dutch scientist, Anton van Leeuwenhoek (Lay vun hook), created the first microscope in the 1600s. Though extremely crude and simple, it allowed him to begin viewing things that had never before been seen with the human eye. Over the next 200 years, scientists greatly improved microscopes by grinding higher quality lenses and developing the **compound light microscope**, which uses a series of lenses to magnify objects. These days, compound light microscopes can magnify objects up to 1500 times their original size.  As the observations of organisms viewed under a microscope expanded, scientists began to draw conclusions about the organization of living matter. Robert Hooke was an English scientist who lived at the same time as van Leeuwenhoek. Hooke used a compound light microscope to study cork, the dead cells of oak bark. In cork, Hooke observed small geometric shapes (see the picture on the board). Hooke gave these box-shaped structures the name *cells* because they reminded him of the small rooms monks lived in at a monastery. **Cells** are the basic units of all living things.  Several scientists extended Hooke’s observations and drew some important conclusions. In the 1830s, the German scentist Matthias Schleiden observed a variety of plants and concluded that all plants are composed of cells. Another German scientist, Theodor Schwann, made similar observations on animals. The observations and conclusions of these scientists are summarized as the **cell theory**, one of the fundamental ideas of modern biology.  First, the cell theory states that all organisms are made of one or more cells. Some, like bacteria, are made of only one cell. These are called *unicellular*. Others, like plants and animals, are made of many cells (called *multicellular*).  According to the cell theory, no matter how complex an organism becomes, cells are always the basic component of living things. Before the cell theory, people did not understand how cells formed, where they came from, or what determined what type of cell they became. Now, scientists realize that cells divide to form two identical cells; all cells come from other cells dividing. A notable exception is when a sperm and an egg cell come together to form a new cell (the embryo). After this, the embryo divides to create the rest of the cells in a baby. | **Check Your Understanding**  1. What tool was necessary for scientists to learn more about organisms?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  2. What was Anton van Leeuwenhoek’s contribution to science?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  3. Why did Robert Hooke call his discovery *cells*?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  4. Are you multicellular or unicellular? How do you know?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

5. Who was Robert Hooke, and why was he so important? [Full Sentence(s)]

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. Where do new cells come from? [Full Sentence(s)]

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. *In your own words*, summarize the **cell theory**[Full Sentence(s)]

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The Cell Theory

|  |
| --- |
| 1. |
| 2. |
| 3. |

|  |
| --- |
| *>> Check for Understanding*  *Which part of the cell theory do the following describe?*  1. Viruses are not considered living things, because they are not made of cells.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  2. In order to replace dead skin on the surface, cells below the surface divide..  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

Independent Practice

*Below, create a drawing that represents each part of the cell theory*.

1. Cells are the basic structure of all living things.

|  |
| --- |
|  |

1. All living things are made of cells.

|  |
| --- |
|  |

1. All cells come from preexisting cells.

|  |
| --- |
|  |